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Guidelines for school maintenance techniques and operational procedures in which consideration is given to the following aspects of school maintenance and operation--(1) importance and responsibilities of the school custodian, (2) custodial personnel policies, (3) housekeeping duties in the school plant, (4) cleaning restrooms in the school plant, and (5) operation and care of mechanical equipment in the school plant. An extensive bibliography of books, periodicals and bulletins concerned with school maintenance is included. (FS)

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THE SCHOOL CUSTODIAN
and
OPERATION OF THE SCHOOL PLANT

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1963

BULLETIN NO. 997

THE SCHOOL CUSTODIAN
and
OPERATION OF THE SCHOOL PLANT

Prepared by a

Special Committee under

the Direction

of

C. E. Holly

Director, School Housing

Issued by

STATE DEPARTMENT OF PUBLIC EDUCATION

William J. Dodd, Superintendent

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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ACKNOWLEDGMENTS

A committee of school administrators was assigned the responsibility of preparing a school maintenance and operation handbook. The scope of the problem and availability of data necessitated the preparation of two bulletins, the first concerned with maintenance techniques and the second concerned with operational procedures. Hence, two sub-committees were designated and assigned the responsibility of preparing separate guides for each phase of the program.

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CHAPTER I

INTRODUCTION

1. Problem

With the rise and development of the secondary school a new position, the maintenance employee, was made necessary. In the one-room school building the teacher served in the maintenance phase of the school program as well as in the instructional phase. However, in the modern consolidated building, with up-to-date systems of heating and ventilation, sanitary drinking fountains, sanitary toilets, electrical systems, gymnasiums, and auditoriums, school maintenance has acquired a new importance in the over-all school program. This position is not a common labor job to be filled by a person with more brawn than brain. School custodians are required to work with administrators and instructional personnel to promote the aims and objectives of the school. If the position is considered in the light of its importance, school maintenance personnel will be considered valued members in the school organization, who merit respect, confidence, and approval of associates on all levels when performing duties in an exemplary manner. The recognition of the importance of the position by school boards and school administrators should develop a better understanding of what modern conditions require a school custodian to do in order to adequately perform his appropriate role in an educational system.

Furthermore, if school boards, superintendents, principals, teachers, and parents can better understand and appreciate the importance of proper school maintenance through employment of competent school custodians, it is believed that a valuable service will have been rendered to the cause of public education in Louisiana.

Importance of the Report. There are several reasons why the following report on school maintenance service has been prepared. Some of the more important aspects are (1) the importance of the position held by maintenance personnel in a modern school system, and (2) the unavailability of standardized procedures and techniques of duties performed by school custodians. The importance of the properly qualified school maintenance employee is obvious when his relationship to the upkeep and sanitation of buildings in his charge, the health and safety of the occupants, the educative value of his work, and his influence upon pupils from a moral standpoint during the years most vital in the formation of character are considered. Too, the lack of prepared performance standards for school custodians is in part responsible for the lack of appreciation on the part of school officials and the public in general of the importance of the position.

II. Definitions of Terms

School Maintenance. The term as used in this report consists of those services, activities, and procedures which are concerned with preserving, protecting, and keeping buildings, grounds, and equipment in a satisfactory state of affairs. It covers a wide range of activities including some repairs, renovations, and adjustments.[1]

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[1] R. N. Finchum, Organizing the Maintenance Program. U. S. Office of Education. (Washington, D. C.: U. S. Government Printing Office, 1960). P. 1.

School Maintenance Personnel. This term has particular reference to the positions held by men and women employed by parish and city school boards for the purpose of performing housekeeping duties and responsibilities.

Exterior Facilities. This term refers to and includes the care and maintenance of school grounds, building foundations, walls, ceilings, fenestration, and roofs.

Interior Facilities. This term denotes the care and maintenance of such items as floors, plumbing systems, electrical systems, electrical apparatus, heating and air conditioning equipment, hardware, and furniture.

Principal. This term has reference to the employees of parish and city school boards who possess the necessary qualifications and are duly appointed to serve as the administrator or leader of an elementary, junior high, combination, or senior high school in Louisiana.

School Board. This term indicates the governing authority of the public school system of a parish. A school board is authorized in terms of statutory provisions to determine the number of schools to be operated and the location of school buildings. In the implementation of this program, local boards are authorized to construct such physical plants as are needed to operate the educational program under the jurisdiction of the school boards.

Parish Superintendents of Schools. This term indicates the position held by a person appointed by a local school board to administer policies formulated for the operation of the schools established by the school board. The term of office is four years.

III. Sources of Data

The materials compiled and used in this report were secured from the following sources: (1) approved service standards for school maintenance personnel representing various sections of the United States, (2) work manuals, handbooks, bulletins, and pamphlets published and made available by various school systems, state departments of education, and colleges and universities, (3) articles from leading educational periodicals, and (4) volumes in education related to the subject.

CHAPTER II

THE SCHOOL CUSTODIAN

A. IMPORTANCE OF THE SCHOOL CUSTODIAN

In the period when almost any type of building was regarded as satisfactory or "good enough" for school purposes, the position of the school custodian was not usually regarded as being very important. He was thought of as the man in the basement--the fellow who fired the furnace and swept the floors at the close of the school day. His work was monotonous, and the appreciation was rather indefinite. Garber,[2] in his study of the school custodian reports that the only duties which the position demanded were those of building fires and sweeping the floors of an inadequate school building. Now, there are literally scores of duties to perform, many of which are not usually considered by those who employ custodial personnel. Garber[3] states further that the vast development of duties, both in variety and in importance, makes it necessary that the position be classed as requiring responsible and intelligent school personnel, technically qualified to manage a modern school building, and informed and skilled in handling and caring for the expensive equipment.

Some well known specialists in education are of the opinion that the school custodian is one of the most important persons in a school system. Dresslar says: "The janitor of a modern school building is, next to the principal, perhaps the most important officer in the school."[4]

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[2] John A. Garber, The School Janitor, A Study of the Functions and Administration of School Janitor Service (Washington: Government Printing Office, 1922), p. 3.

[3] Ibid., p. 4.

Another school administrator expressed the same opinion in the following statement: "The position of janitor is a very responsible one; no other individual about the school building unless it is the principal, has so much influence over conditions which affect the health of pupils."[5]

Another eminent school authority says: "A good janitor is harder to replace than a good teacher, and in most cases, than a good principal."[6]

Womrath[7] expresses a similar opinion when he remarks that a school janitor is an economist, a sanitarian, a moralist, a first-class housekeeper, a sociologist, a diplomat, a maintenance engineer, and an expert mechanical engineer.

In a recent statement one of our prominent educators had this to say relative to the importance of the school janitor.

> Janitorial service in a school is not a simple matter. On the contrary the service involves a great many types of jobs requiring a variety of skills, abilities, and knowledges. There are scores of different housekeeping tasks, engineering jobs and repair needs in a school plant; and the capable janitor is expected to have a working

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[4] Fletcher B. Dresslar, "Qualifications and Duties of a School Janitor," School Hygiene (New York: The Macmillan Company, 1923), pp. 351-53.

[5] John A. Garber, op. cit., p. 3.

[6] John A. Garber, op. cit., p. 3.

[7] George F. Womrath, "School Janitorial and Engineering Service," The American School Board Journal, Volume 70:47, June, 1925.

> knowledge of the fundamental requirements even if he is not a skilled craftsman in each of the several building trades.[8]

Reeder, writing on the importance of the school janitor, is of the opinion that the janitor is a vital member of the school personnel. In support of this idea he lists the following reasons:

> 1. The janitor is important because, acting under the general supervision of the principal of the school, he is the custodian and user of valuable property. He has charge of a building which in many instances cost several hundred thousand dollars.
>
> 2. The janitor is responsible for the use of hundreds of dollars' worth of supplies; often, too, he helps to select the supplies which he uses, and the performance of this function requires good judgment.
>
> 3. The school janitor largely determines the housekeeping standards of the school building. He is to the school what the housekeeper is to the home.
>
> 4. The janitor has the responsibility for keeping the school building in such condition that the health and safety of pupils and teachers will not be placed in jeopardy.
>
> 5. The school janitor exercises a great moral and educational influence in the school.[9]

In June, 1947, the New England School Development Council Committee on Regional Studies joined with the Newton Public Schools of Massachusetts in conducting a two-day conference on problems of the school janitorship. The conference was attended by approximately eighty janitors, supervisors, and superintendents of schools from fifteen different communities in four New England states. Their purpose was to stimulate the interest of building service employees in their job, to present information that would make the care and operation of buildings more efficient and less difficult, and to examine the problems which school janitors constantly face.

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[8] Henry H. Linn, "The School Custodian," The School Executive, Volume 68:11-12, July, 1949.

[9] Ward G. Reeder, Public School Administration (New York: The Macmillan Company, 1941), pp. 310-12.

In the pamphlet, Guide For School Custodial Service, published as a result of the committee's work, the following statement is made relative to the importance of the school janitorship:

> The school janitor is an educator. Although the tools of his trade are somewhat different from those of the teachers, nevertheless the skill with which the janitor carries out his part in the education of children determines to a considerable extent how good the child's education can be.
>
> The janitor is the key person in making schools safe, sanitary, and healthful places for boys and girls. In addition, the efficiency and economy with which public funds are spent to operate school buildings depend in large measure on how well the janitor knows his job and the conditions under which he works.[10]

Linn recognizes the important position held by school service employees. In a brief summary, he lists the following as being important responsibilities of the school janitor:

> 1. The custodian is responsible for the care of costly property that needs constant attention to prevent undue wear and tear, depreciation, and expensive repairs.

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[10] New England School Development Council, Guide for School Custodial Service, (New York: Bureau of Publications Teachers College, Columbia University, 1948), pp.1-3.

> 2. He is responsible, in part, for the safety of the teachers and pupils in his building, and for reporting and removing hazards and other dangerous conditions that might result in accidents or fire.
>
> 3. He is responsible, in part, for the health of teachers and pupils, because he can control to some extent the health conditions within the building.
>
> 4. He is responsible for maintaining standards of cleanliness that will encourage habits of cleanliness on the part of others.
>
> 5. He is responsible for maintaining standards of neatness that pupils may be influenced to adopt.
>
> 6. He is responsible, in part, for providing conditions that tend to make for better teaching and learning by making teachers and pupils more comfortable and contented.
>
> 7. He is responsible for developing good will for the institution through a courteous, cheerful, and helpful attitude.
>
> 8. He is responsible for effecting economies in operation by preventing the needless waste or careless use of supplies, equipment, water, electricity, and fuel.[11]

In their study of school service employees and school building management, which represents one of the most comprehensive treatments of the subject, Reeves and Ganders emphasize four important responsibilities of the janitor as follows:

> 1. Responsibility for the Health of School Children. Involved in the janitor's responsibility is the health and safety of the children. The sanitary conditions of the classrooms, toilet

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[11] Henry H. Linn, Leslie C. Helm, and K. P. Grabarkewicz, The School Custodian's Housekeeping Handbook (New York: Bureau of Publications Teachers College, Columbia University, 1948), p. 4.

> rooms and grounds; the maintenance of even temperature at the best degrees in classrooms, gymnasiums, and in dressing rooms; the supply of pure, tempered, and humidified air--all bear a definite relationship to the health of school children.
>
> 2. *Influence of School Building Management on School Discipline and Ideals*. The janitor's personal influence upon children in the elementary grades is scarcely less than that of the teacher. This calls for acceptable personal appearance, high standards of conduct and morality, intelligence and high-mindedness on the part of the janitor.
>
> Ideals are largely formed by the experiences and contacts of the child. For this reason it is essential that the care of the school building be not inferior to that found in the best of homes. More teaching of cleanliness, in itself, is ineffective. The child must have experiences through which ideals that are taught may be interpreted and understood.
>
> 3. *Influence of School Building Management Upon Conditions for Learning*. Orderliness of physical surroundings probably has an important relationship to orderly mental processes. Proper temperatures and good air are important conditions for the best mental activity.
>
> 4. *Importance of School Building Management to the Care of School Property*. Every school building and its equipment have cost the public thousands of dollars. Factors of building repairs, of keeping apparatus and equipment in repair, of oiling motors, etc., will in the long run, usually result in a saving far greater than the difference in the salaries of the qualified and of the unqualified janitors.[12]

These statements are not gross exaggerations. The maintenance and operation of the school plant are in the hands of the janitor. He is the person who has first hand acquaintance and knowledge of the janitorial problems of the school plant. Because of his intimate relationship with the form, material, and design of the school building, he is a man whose advice and opinion in certain matters are quite valuable. In many communities he, more than anyone else, is responsible for the care of costly public property with valuations running into hundreds of thousand and even millions of dollars.

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[12] C. E. Reeves, and H. S. Ganders, *School Building Management* (New York: Bureau of Publications Teachers College, Columbia University, 1928), pp. 2-4.

The school custodian is responsible in part for the health of the occupants of a school. If he understands the importance of sanitation and exerts himself to keep the building clean, his service results in at least a retardation in the growth and spread of harmful disease germs and bacteria. The proper operation of heating, lighting, and ventilating provisions also has a bearing on the health of the occupants of the building.

The school janitor must accept a share of responsibility for the safety of pupils and teachers; safety against the hazards of fire and accidents. Many fires and accidents occur as a result of poor housekeeping practices, and others because of defects in the building structure. A janitor, of course, cannot be held responsible for all existing hazards, but if he knows his business and is alert, he can reduce the number.

The school janitor is responsible for maintaining high standards of cleanliness and neatness which, by their example, may prompt children to set up higher personal standards of cleanliness and neatness.

Teachers and pupils are influenced by their environment. They unquestionably can do better work in clean, attractive, and comfortable rooms than they can in dirty, stuffy areas that are either too cold or too warm. To the extent that he can provide the more appropriate conditions, the janitor is aiding in the teaching and learning processes.

Building service employees can help to build good will for their respective institutions by their demonstration of efficiency, and by their manners, attitudes, and conduct when they come in contact with the public. School custodians can contribute to the development of good spirit and morale among the occupants of the buildings by a courteous, cheerful, and co-operative attitude.

The efficient school janitor, furthermore, can effect financial economies in carrying out his duties. By a proper scheduling of work assignments, he can reduce the amount of waste time.

Due to the increase in the number and importance of duties and responsibilities, it is now generally recognized that the school janitorship is a vital factor in our present educational system. Linn supports the foregoing idea by saying that:

> The janitor is passing out of the realm of the forgotten man in the school system. Over recent years many changes have occurred in his status. In the main these gains are commendable, but even more important has been the growing recognition of the janitor's unique position in the educational organization, with a greater respect for both the man and his job.[13]

B. RESPONSIBILITIES OF THE SCHOOL CUSTODIAN

School janitorial service involves numerous tasks in many different areas, both inside and outside of the building. It comprises scores of different activities, many of which have to do with cleanliness, an essential to good health, and to the maintenance of standards of decency. Others are engineering jobs, requiring technical knowledge as well as skill. The types of repairs are varied and necessitate a wide range of abilities. There are grounds to tend and lawns, often landscaped, to maintain. All in all, the school service employee must be a person with many skills.

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[13] Henry H. Linn, op. cit., pp. 13-14.

Numerous studies have been made in an effort to determine as accurately as possible the services that are rendered by the janitorial staff. One of the earliest of these investigations was conducted in 1922, when the Public School Board of Minneapolis, Minnesota,[14] provided an excellent set of rules and regulations governing the janitorial service rendered in the schools under their supervision. Fifty-five items were listed as duties and responsibilities of the janitorial staff in the public schools of that mid-western city.

A few years later N. L. Engelhardt working in cooperation with C. E. Reeves and G. F. Womrath[15] devised a score card for public school janitorial service. This score card is divided into sixteen major headings, which attempt to measure every phase and aspect of public school janitorial service.

In 1929, The Board of Education of Rockford, Illinois,[16] adopted a complete set of rules and regulations governing the janitors and engineers and outlining the details for the care of school property. The basic study for the new rules was made by the superintendent's office and the material was presented to the board of education by Superintendent F. A. Jensen. This set of rules covered thirty different groups which altogether embraced a total of seventy specific items.

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[14] John A. Garber, _op. cit._, pp. 48-51.

[15] N. L. Engelhardt, C. E. Reeves, and G. F. Womrath, _Standards For Public School Janitorial-Engineering Service_ (New York: Bureau of Publications Teachers College, Columbia University, 1926), pp. 5-10.

[16] Rockford Board of Education, "Adopt A Progressive Plan for the Care of School Buildings," _The American School Board Journal_, Volume 78:110-114, February, 1929.

A short period later, Jenkins[17] devised a score card for school janitors. This score card has been presented to, and used by members of a state janitor association with some good results. This measuring device consists of eleven items relative to the service rendered by the school janitor.

Another check list of janitorial service was prepared by Superintendent J. C. McKee[18] of Truman, Minnesota, and was later used with effective results by the St. Joseph, Missouri, Board of Education. This scale gives many of the fundamental requisites of a successful school janitor. This list is divided into the five following groups: (1) personal improvement; (2) care of school property; (3) housekeeping; (4) cooperation; and (5) saving of materials and supplies.

Kirk prepared for the janitors in the schools under his direction, a statement of practical ideals of service and a series of suggestions for maintaining correct relations with teachers and pupils. He writes in part:

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[17] H. E. Jenkins, "A Self-Rating Score Card for School Janitor Engineers," The American School Board Journal, Volume 84:56-57, November, 1945.

[18] J. C. McKee, "Self-Rating Scales for Janitors," cited by Wayne E. Mase, "A Self Rating Scale for School Custodians," Kansas State Teachers College Bulletin of Information (Topeka: Kansas State Printing Co., 1939) pp. 11-12.

> The janitor is an important person in the school system. His importance cannot be overrated.
>
> Each of you has an important part to perform in the successful operation of the school system. Upon you depends to a large extent the safety, comfort, and health of the children attending school.
>
> More than this, the growth of a good school spirit is promoted or retarded by the attitude assumed by the janitor toward his work and toward pupils and teachers. You may be absolutely certain of my sincerity when I state that your work is of high importance.
>
> Your task is a difficult one. You have many people to please. First of all, you have the responsibility of doing your work in a manner satisfactory to the board of education and to the superintendent. Next, you must work harmoniously with the principal and teachers in your building. Then you have the responsibility of creating and maintaining good will toward yourself on the part of the boys and girls in your buildings. Finally, the parents must like you and approve of your work.
>
> The primary groups of janitorial service are: (1) cleanliness, (2) comfort, (3) sanitation, (4) safety, and (5) economy.[19]

Reeves and Ganders[20] have made a very comprehensive study of the operation and care of school plants. Their investigation was made under the following headings: (1) personnel and management of school janitorial service; (2) efficiency and economy in the cleaning of school buildings; (3) efficiency and economy in the heating and ventilating of school buildings; and (4) efficiency and economy in the special work of school management.

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[19] H. H. Kirk, "Service Standards for School Janitors," The American School Board Journal, Volume 89:44-46, July, 1934.

[20] C. E. Reeves, and H. S. Ganders, op. cit., p. 4.

Mase,[21] in 1939, devised a rating scale for school janitors, after having made a careful analysis of two other scales for janitors and reviewing over fifty articles pertaining to the school janitor and his work. The scale includes such main points as social and personal characteristics, cooperation, care of the school building, care of school property other than the building, economical operation, and miscellaneous factors.

Viles,[22] in his investigation of janitorial service, not only attempts to determine the duties of the school janitor, but also strives to evaluate the performance of each task. This check list is divided into twelve major divisions embracing a total of one-hundred and thirty-three specific items and represents a thorough analysis of the duties and responsibilities of school service employees. According to this study the major purposes of good school maintenance are (1) preserving the public's investments in school property; (2) providing proper facilities for the protection of children; (3) providing proper school housekeeping for character building, and (4) providing proper school housekeeping so that effective and economical work can be done.

A more recent check list is that one devised by Linn, Helm, and Grabarkeiwicz,[23] of Teachers College, Columbia University. This check list consists of a series of forms developed to cover the several different areas receiving janitorial care. The chief values of this check list are the listing of detailed duties to be performed, and the calling of attention to specific items that might otherwise have been overlooked.

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[21] Wayne E. Mase, "A Self-Rating Scale for School Custodians," Kansas State Teachers College Bulletin of Information (Topeka: Kansas State Printing Company, 1939), pp. 11-12.

[22] Nelson E. Viles, The Custodian at Work (Columbia: The University of Missouri Publishing Company, 1941), pp. 373-382.

[23] Henry H. Linn, Leslie C. Helm, and K. P. Grabarkeiwicz, op. cit., pp. 234-252.

While a few of the larger cities have taken a long step forward toward standardizing janitorial-engineer work, it remained for the city of Alhambra, California, to make a complete survey of the local schools and of the janitorial work, and to develop daily janitorial work schedules based on (1) desirable community standards of efficiency, (2) a careful job analysis of each janitor's work, and (3) a comparative study of local performance averages and other accepted standards.[24]

The Alhambra program was based on a janitorial survey, conducted by the W. P. A. workers, under the direction of the director of research, M. R. Stokesbury. In the fall of 1935, W. P. A. workers were employed to make a survey which included the following five points: (1) a time and motion study of all operations being done by each janitor over a period of several days; (2) a study of all the operations that should be done in each section of the school plant; (3) a study of the frequency with which each operation should be repeated; (4) a determination of the man power required to do the required amount of work in the given time; and (5) a detailed schedule of work for each janitor based upon the findings of the study.

On the basis of findings, a detailed tentative individual schedule was made for each worker in the high school, which, after a trial was adopted by the janitorial staff. The efficiency as well as the quality of the work was improved as a result of this study.

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[24] "Standardizing Janitorial Service in Alhambra, California," American School Board Journal, Volume 93:64-66, September, 1936.

Other studies, relative to the services rendered by the school janitorial staff, have been made by competent individuals in the field. However, a review of ten prominent investigations has been presented.

In Louisiana, a study of the duties and responsibilities of the school janitorial staff employed in the white public schools located in the Eighth Congressional District of Louisiana was conducted in 1950. The check list used in this study represented a careful study of analyses of nine other individual check lists representing various sections of the United States and twelve manuals and pamphlets written on janitorial service. Furthermore, twenty-five articles pertinent to the problem were carefully reviewed, and those items and duties appearing most frequently were used in addition to items mentioned by authorities in the field. The check list was so arranged that the principal was able to mark the duties and responsibilities assigned to the school's janitorial staff. The study was based upon replies received from over eighty percent of the principals contacted in the study.[25]

The results of this investigation indicated that janitorial duties considered important by eminent authorities, representing different sections of the United States, were performed in a majority of the schools participating in the survey.[26]

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[25] John Berton Gremillion, The School Janitorial Staff Duties and Responsibilities. (Unpublished Master's Thesis, Louisiana State University) January, 1950, pp. 19-20.

[26] Ibid., p. XIII.

C. SUMMARY

The school custodian is an important member of the school staff. Proper care of plant facilities and equipment representing vast investments in the public school program by the general public are the responsibility of the school custodian. Too, the school custodian is responsible in part for the health and safety of the occupants of a school. His functions are numerous, varied, and of major significance in the efficient operation of a school. A competent school custodian is an asset to a school staff, and a greater awareness of the importance of the position and the responsibilities involved by the professional staff and the lay public will result in a better understanding of operational problems in promoting an effective educational program.

CHAPTER III

CUSTODIAL PERSONNEL POLICIES

In most states, local boards of education are designated by law as control bodies for local public school systems. Composed of laymen who are not usually trained in school administration, these boards usually function as policy making bodies. Details of school management are entrusted to an executive officer, generally designated as the superintendent of schools, who is responsible to the board. Depending upon the size of the school unit, available funds for administrative personnel, the organizational pattern, and other factors, the superintendent may delegate certain of his responsibilities to various other officials.[27]

Realizing that it is a poor business practice to make investments in building, equipping, operating, and maintaining school buildings and employing untrained personnel for operation, school officials are giving increased attention to the management of custodial programs. This is frequently accomplished by assigning major school-plant responsibilities to an assistant superintendent in charge of buildings and grounds, to a business manager, or to a director of maintenance and operations.[28]

Regardless of local administrative patterns concerning school plant management, school boards, under the leadership of their executive officers, have an obligation to develop and adopt policies that contribute to the improvement of custodial services. Concerning the personnel who perform these services, there should be definite policies covering (1) lines of authority, (2) personnel selection, (3) salary schedule, (4) probationary period, (5) promotion and demotion, (6) leaves of absence, (7) insurance protection, (8) grievances, (9) dismissals, and (10) retirement.[29]

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[27] R. N. Finchum, _op. cit._, p. 22.

[28] _Ibid._, p. 22.

A. ORGANIZATION

Lines of authority for supervisory control of school personnel should be clearly defined and well established. This is particularly true for school custodians because services may be demanded, supervised, and praised--or condemned--by all who have any interest in the operation of school plants. A reasonable adherence to sound policies governing supervisory control should protect both the custodian and the school district against unjustified demands for custodial time.[30]

Good administrative practice dictates that the executive officer of the board be responsible to the board, and that all other school employees, regardless of rank, be responsible to him or to his designated assistants. In the case of the school custodian the line of authority should begin with the superintendent and extend through designated administrative heads to the school principal. There seems to be general agreement that, while the actual supervision of adequate performance and checking the work standards of custodians is the responsibility of either the superintendent or his designated assistant, all directions, procedures, and orders from the central office should be transmitted through the principal. Furthermore, it is essential that the principal of each school have immediate supervision over all custodial employees in his building.[31]

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[29] Ibid., p. 22.

[30] Ibid., p. 23.

B. PERSONNEL SELECTION

Since custodial personnel are so important to the school organization and to the educational program, adequate attention should be given to administrative policies regarding their selection and assignment. Whenever sound administrative patterns for the selection of custodial personnel are adopted by local boards, worthwhile savings result through high performance standards, economical use of supplies, and proper care of buildings and equipment.

In general, when local conditions are such that good practices can be followed in selecting school custodians, the superintendent, or his designated officer, should develop a plan of positive recruitment. A standard application form, prepared by the school personnel office, or by the official in charge of personnel procurement, should be completed by all applicants, both recruited and unsolicited. A systematic record of all qualified applicants should be kept. This record can serve as a reservoir of information for future reference. When applications have been filed with the appropriate official, a thorough investigation of each candidate should be made. This investigation may be made either by telephone or by letter and should cover such items as previous work experience, personal habits, home and family relations, health record, emotional stability, ability to deal amicably with children, and other related items. After the investigation has been completed, each applicant should be interviewed by a committee consisting of the principal under whom the work is to be performed, the assistant superintendent in charge of buildings and grounds, and the superintendent of schools, or his designated representative. The interview should be formal, pleasant, and designed to put the candidate at ease; and should cover points considered essential to proper selection.

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[31] Ibid., p. 23.

Following the interview, each candidate should be given three short tests to determine the applicant's ability to read, write, and follow instructions, his ability to remember and follow oral instructions, and his proficiency and aptitude in relation to the work to be assigned. Data obtained through investigation, interviews, and tests should be used to develop a list of eligible candidates. From this list, the principal concerned and other officials involved in the interview should select the candidate best qualified to do the job. If there are several acceptable candidates, these may be indicated in order of preference. The recommendations of this committee are then transmitted through the superintendent of schools to the board of education. The board, having legal authority to make all such appointments, can act upon the recommendations.[32]

In Louisiana, parish and city school boards are legally authorized to select and appoint such personnel as may be necessary for the proper and efficient conduct of the schools. Specifically, local school boards are authorized to

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[32] _Ibid._, pp. 28-29.

> ....appoint such assistant superintendents, supervisors, stenographers, and bookkeepers as may be needed, and such attendance officers, medical directors, and other appointees, as may be necessary.[33]

In general, local school boards and superintendents follow a detailed procedure in appointing custodial personnel. Practices may vary from one unit to another, however, every effort is made to secure qualified personnel.

C. SALARY SCHEDULE

The ability of school boards to attract, develop, and retain competent school custodians is directly related to personnel policies, particularly those concerning salaries, emoluments, and working conditions. The initial salary paid custodians will play an important part in determining the qualifications of these employees. Administrative units paying relatively high beginning salaries may expect to attract more desirable people than units paying relatively low beginning salaries. It has been frequently indicated that a liberal salary schedule for noncertified employees is a good investment. Such employees are entitled to know the salary schedule and the conditions of employment.

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[33] West's Louisiana Revised Statutes of 1950, Volume 13, Title 17-Education, Section 84. (St. Paul: West Publishing Company, 1951). p. 172.

Board policies covering salary schedules should be developed through discussions, studies, and investigations in which all affected employees participate.[34]

In Louisiana, local school boards are not only authorized to appoint the custodial staff but also empowered to designate the salaries to be paid each member of the school plant management staff.[35] There are no other legal stipulations. Each school board has established a schedule in terms of available funds. As a result, wide variances exist in rates paid by the various school boards.

D. TENURE

Tenure benefits are available to custodial personnel in only one parish school system. Legal authorization was granted to the Orleans Parish School Board[36] to provide tenure for regular or permanent employees other than teachers. Under the provisions of the law, no regular or permanent employee may be dismissed or discharged except upon written and signed charges of willful neglect of duty, or of incompetency, dishonesty, immorality, or of insubordination, or of being a member of or contributing to any group, organization, movement or corporation that has been prohibited from operating in Louisiana by State law or court injunction, or of advocating or in any manner performing an act toward bringing about the integration of the races within the public school system or any institution of higher learning located in Louisiana. Any employee charged under any one or more reasons for dismissal is entitled to a public or private hearing before the school board with witnesses and with counsel of his selection. A copy of the written charges must be presented to an employee by the school board fifteen days in advance of the date set for the hearing.

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[34] R. N. Finchum, op. cit., pp. 32-33.

[35] West's Louisiana Revised Statutes of 1950, op. cit., p. 172.

[36] West's Louisiana Revised Statutes of 1950, Pocket Part Supplementary, Volume 13, Title 17 - Education, Section 523. (St. Paul: West Publishing Company, 1962). p. 108.

E. LEAVE WITHOUT PAY

Parish and city school boards are authorized by law in Louisiana to grant leaves of absence, without pay, for periods not exceeding one year, to any regularly employed teacher or other employee. The leave must be requested in writing and action by the board is permissive and may be granted whenever such leave is in the best interests of the public school system. The granting of such leaves does not affect any tenure rights which an applicant may have acquired prior to requesting a leave.[37]

F. SICK LEAVE

Sick leave is the absence from duty of an employee because of personal injury, illness, or exposure to contagious disease. A fair custodial sick-leave policy will protect the school district, the employee, and in some instances, pupils and other employees. The school district is protected to the extent that custodial services need not be curtailed;

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[37] *Ibid.*, p. 141.

the employee, to the extent that he can rest, have medical attention, and hopefully recover early; pupils and other employees, to the extent that they will not be exposed to any contagious disease.[38]

All school maintenance personnel in Louisiana are entitled to a minimum of ten days leave of absence as sick leave or other emergencies per school year without loss of pay. Unused sick leave may be accumulated to the extent of twenty-five days in any three year period, however, at the option of the individual school board, such unused sick leave may be accumulated without limitation. In requesting and granting accumulated sick leave, it is mandatory that a certified statement by a practicing physician be presented in behalf of the employee before such leave may be granted by the local board. In addition, parish and city school boards are authorized to grant additional sick leave without loss of pay, or with such reduction of pay as the board may establish and fix.[39]

G. MINIMUM PAY FOR SUBSTITUTE EMPLOYEES

Parish and city school boards are empowered to employ substitute employees for regular employees who are on leave. The daily rate of pay for substitute employees has been determined by State law as being an amount not less than sixty-five percent of the daily rate paid to the regular employee.[40]

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[38] R. N. Finchum, op. cit., p. 38.

[39] West's Louisiana Revised Statutes of 1950, Pocket Part Supplementary, op. cit., p. 142.

[40] Ibid., p. 142.

H. GROUP INSURANCE

Local school boards may make contracts for group medical, surgical, and hospital benefits and services with an insurance company, hospital service, and physician service legally authorized to do business in Louisiana. These contracts provide for medical, surgical, and hospital service and benefits for school board employees under a policy of group insurance. The matter of paying a part or all of the premiums or charges for such a contract from accruing revenues is a matter left to the discretion of each school board. The contracts negotiated under such authorization may also provide benefits for members of the employee's family or dependents, however, the additional cost of this service is paid solely by the employees. Deductions may be made from an employee's salary, pay, or compensation in order to pay for a part or all of the premium necessary to provide medical, hospital, and surgical benefits. Participation by employees is voluntary and no effort should be made to make it compulsory upon any employee to assign or authorize deductions from wages or salaries for the payment of premiums.[41]

I. RETIREMENT

It is generally recognized that some form and some degree of economic security should be provided all workers upon retirement regardless of whether caused by age, health, or disability.

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[41] Ibid., p. 142.

In Louisiana, non-professional school employees are covered by a retirement system. This system was established by a legislative act and was placed under the management of a board of trustees for the purpose of providing retirement allowances or other benefits for school bus operators, school janitors, school custodians, and school maintenance employees employed in the State public school system. This system is a state agency and has been vested with powers and privileges of a corporation under the title of Louisiana School Employees' Retirement System.[42]

J. WORKMEN'S COMPENSATION

Benefits provided by workmen's compensation are available to the custodial staff. State law provides that every person in the service of the State or political subdivision which includes local school boards, should be protected by workmen's compensation. The purpose of this program is to provide means of subsistence to an employee during a specific time when his earning capacity has been partially or entirely destroyed, either temporarily or permanently, by injury received in course of employment. Another objective of the law is to provide the means of subsistence to the dependents of an employee for his death if caused by an injury. Parish school boards are not free as political subdivisions from amenability of workmen's compensation, and as a result, an employee of a school board has a right and cause of action against the school board for compensation for injuries received while in the employment of the board. It is immaterial whether the task performed in the course of sustaining an injury is hazardous or nonhazardous.[43]

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[42] _West's Louisiana Revised Statutes of 1950_, _op. cit._, pp. 405-406.

K. SUMMARY

Parish school boards are authorized to employ custodial personnel. A program of recruitment and training serve a useful purpose in attracting and retaining qualified and competent personnel for maintaining the school plant.

Benefits which are earned by custodial personnel serving in the public schools of Louisiana are:

1. Leave without pay
2. Sick leave
3. Minimum pay for substitute employees
4. Group insurance
5. Tenure (Only in Orleans Parish)
6. Retirement
7. Workmen's compensation
8. Miscellaneous others

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[43] West's Louisiana Revised Statutes of 1950, Volume 16, Title 23, Workmen's Compensation, Section 1034. (St. Paul: West Publishing Company, 1951). pp. 305-306.

CHAPTER IV

HOUSEKEEPING DUTIES IN THE SCHOOL PLANT

School custodial duties involve all activities concerned with cleanliness of surroundings; storage; and order and arrangement of operational equipment, supplies, educational material, and personal belongings. Responsibility for good housekeeping, though a prime duty of the custodian, is not his alone. This responsibility must be shared by all who occupy or use school facilities.[44]

In addition to supervising all activities necessary in building care, principals should instruct school personnel and other users of school facilities as to individual responsibilities for good housekeeping. Teachers are not expected to perform custodial duties, however, each instructor should provide good housekeeping standards for students. This program can be accomplished through orderly arrangement and storage of instructional materials, books, and posters; general room atmosphere of neatness; development of individual responsibility in the care of wraps, textbooks, and other personal belongings; and the cultivation of respect and pride in clean surroundings. Children should be taught to use the wastebasket, to clean shoes before entering the building, to leave all desks free of books or other materials, and to refrain from marking on walls. Without imposing hardship on the pupils, instruction can cover many other things to lighten custodial tasks and to improve pupil acceptance of citizenship responsibilities.[45]

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[44] R. N. Finchum, op. cit., p. 48.

[45] Ibid., p. 48.

For the purpose of this chapter, it seems appropriate to describe the school custodian's housekeeping duties in terms of six broad categories. These are (1) woodwork, walls, and ceilings; (2) windows and glass; (3) light fixtures; (4) chalkboard and erasers; (5) furniture; and (6) floors.

A. WOODWORK, WALLS, AND CEILINGS

Walls and ceilings should be dusted periodically, preferably during dry weather. Dusting walls in damp weather frequently results in streaks and smears appearing on the dusted surface. Careful attention should be paid to corners, moldings, and baseboards. Since cobwebs on occasions become oil soaked, a lifting stroke should be utilized in removing the webs in order to prevent streaking. A special wall brush equipped with an extension handle and an industrial type of vacuum cleaner equipped with an extension handle are tools which will provide excellent service. This equipment and procedure removes loose dirt and cobwebs.

Most present day school ceilings are acoustical tile and seldom need more than dusting. In some of the older structures, walls and ceilings are constructed with materials that require painting; and under such conditions, washing is necessary in order to remove dirt from the surface. In performing this task, the type of paint used is important for different paints require the use of varied types of cleaning solutions. Walls and ceilings that have been painted with an oil base paint appear to remain in better condition than walls and ceilings that have been painted with a casein paint. It is wise to determine the type of paint used in order to select the proper detergent.

New wall washers are now available for use in schools. This equipment consists of a circular sponge and brush, a hollow plastic handle, and an over-the-shoulder container that holds the cleaning solution. Squeezing a button on the handle releases the cleaning solution through a sponge to the surface to be cleaned, and circular strokes of the brush effectively remove dirt and soil marks. This action eliminates a considerable amount of time and effort since the cleaner is applied automatically. Certain vacuum cleaners, fully accessorized, have floor and wall scrubbing attachments that squirt the detergent upon the surface and remove the soiled water. In wall cleaning the best procedure is to start the wallwashing process at the bottom of the wall and work toward the top. This method prevents the cleaning solution from going downward on the dirty wall and leaving a streak after the water rinse is applied. While some of the wash water will drain down the clean wall, if the upper part is washed after the lower part has been cleaned, these stains can be rinsed from the clean wall without causing streaks.

Formica or ceramic tile walls may be easily cleaned. In cleaning ceramic tile, a stiff brush and a scouring powder may be used. If the formica and the grout used in setting the ceramic tile are stained, a bleach is mixed with water and applied. After the scouring and the removal of stains are completed, a clean sponge may be used for rinsing purposes. Drying should be done with a clean cloth.

A vacuum cleaner should be used to remove dust, cobwebs, and other particles from walls made of special wooden paneling. In instances where stains appear care must be exercised in selecting a cleaning agent that is strong enough to remove the stain without harming the wood grain and paint film.

Extreme caution should be practiced by custodians in every phase of work in the proper use of cleaning tools and equipment. Many accidents to employees have occurred when hazardous jobs have been attempted with inadequate and unreliable equipment.

B. WINDOWS AND GLASS

Windows should be washed periodically depending upon atmospheric conditions. In Louisiana frequent rains remove most of the dirt from the outside surface of the windows. However, in the event the outside surface requires washing, it is suggested that a window washer with a long handle and a sponge be used. One such window washer has a handle that extends approximately fifteen feet for outside surfaces which are difficult to reach. This is attached to an ordinary garden hose. The inside of the glass generally soils as a result of condensation of moisture which fixes the dust on the glass surface. Ordinary windows can be cleaned and shined quickly with a special glass cleaner. Many cleaners are of the spray type and are easy to apply and easy to dry with a soft lintless cloth. Sometimes clear water will be most effective. Most of the other glass, as in doors, should be cleaned daily with a clean, slightly damp cloth or chamois. Picture glass can be cleaned with a soft cloth or chamois which has been squeezed as dry as possible. No water should be allowed to seep under the frame. The glass should be polished with another dry chamois. Window sills should be waxed after each cleaning.

C. LIGHT FIXTURES

The cleaning of light fixtures is a task that requires periodic attention in order to assure proper visual conditions in school buildings. Clean light fixtures, regardless of type of lighting system, improve both quantity and quality of artificial light.[46]

Different types of light fixtures require slightly different techniques in cleaning. Some fixtures may be cleaned without being removed. In other cases it is necessary to loosen and remove lights. The direct type of fixture with a plain shield, or an indirect type with an open reflector may be cleaned while in position. Most of the present day classroom fixtures are metal frames. These fixtures should never be washed since water mars the finish and provides a dangerous situation because of the electrical connections. Use of a vacuum cleaner to remove surplus dust will maintain a clean frame. When stains created by bugs and other items appear, desired cleanliness may be obtained by wiping the fixture lightly with a soft and slightly damp cloth. It is recommended that this be done monthly. Recessed ceiling lights need an occasional wiping and dusting. The metal frames can be polished with a soft chamois. The light-diffusing bowls of drop fixtures should be washed with a detergent or ammonia and clear water. The bowl should be rinsed and dried before replacing. Wiping or dusting the glass walkway lights should be done occasionally. A clean damp cloth easily removes bug stains. Twice a year appears to be frequent enough for walkway fixtures. Flourescent lights must be removed in order to achieve excellent cleaning. Fixtures for flourescent lights may be cleaned with a vacuum cleaner. In working on certain electrical fixtures, it is advisable to turn off the electric current before proceeding with the cleaning process.

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[46] R. N. Finchum, _op. cit._, p. 52.

D. CHALKBOARDS AND ERASERS

Since there are different kinds of chalkboards, several methods of cleaning are acceptable. In general chalkboards and erasers should be cleaned by the custodial staff under the supervision of the custodian and not by teachers and pupils. Ordinarily, the chalkboard should be cleaned weekly, but it may be cleaned more frequently depending upon the amount of use under different conditions. The primary purpose of cleaning a chalkboard is to remove dust, dirt, soil, and other matter from the surface and from the pores below the surface. Regardless of the use of slate or composition chalkboards, the use of water should be avoided. Never use any oily material as a cleaner. Oil makes the chalkboard appear cleaner, but this is just an illusion. Oil combines with chalk, dust, and soil and will form a dirty, greasy compound that will settle in the pores. The removal of oil stains caused by a pupil leaning his head against the board may be removed by rubbing with a cloth dampened with a spot remover. Chalk trays should be cleaned daily with a dry cloth, followed by a damp cloth or furniture wax. The best chalk available should be used at all times. Dustless chalks are usually used and widely recommended.

There are combinations of ways commonly used in cleaning erasers, such as brushing, jarring, and suction. The method of using a portable vacuum cleaner is widely used. Felt erasers should never be washed. Erasers should be cleaned daily. This procedure is important in keeping boards in proper order.

The practice of patting erasers against building walls is undesirable. Too, necessary precautions should be taken to prevent dust from entering the air when erasers are cleaned. It is desirable for each school to have two sets of erasers so that a soiled set can be cleaned at the custodian's convenience while imposing no inconvenience on any classroom because of a delay in cleaning.[47]

E. FURNITURE

Furniture for schools is generally manufactured from wood, metal, or products derived from these materials. It may be finished with paint, enamel, varnish, or plastic. All furniture should be dusted daily; some should be polished weekly with a type of polish or wax that neither darkens the finish nor leaves an oily residue. Plastic surfaces, on the other hand, require no special treatment other than dusting and washing.[48] All furniture whose finish can withstand washing should be thoroughly cleaned with a mild detergent in order to remove fixed dirt. This procedure should be followed at least two or three times a year. Warm water and a neutral soap are recognized as the best cleaner. An excessive amount of water should be avoided. The surface should be dried after cleaning. A thin coat of wax or polish is very helpful. After allowing the surface to dry, the area should be rubbed with a soft cloth to a clean, bright, brand new look. Spot and scratch concealers are helpful in repairing badly nicked or scarred furniture. If any furniture is in poor condition, paint remover should be used to remove old paint. Spray paints are excellent for freshening furniture. These paints are available in any color. The custodian's work schedule for the year should be organized in order to permit major projects during school and holiday vacations without causing changes in the daily work schedule.

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[47] _Ibid._, p. 54.

[48] _Ibid._, p. 55.

F. FLOORS

Classrooms should be cleaned daily. No attempt will be made to outline in detail specific procedures to follow in cleaning floors as each custodian, through experience, will develop efficient and time saving ways of his own. However, some general suggestions may be of some value. These suggestions are of a general nature, and the custodian should not feel that this is the only way of effectively doing the job. However, surveys have been made which indicate that the procedure and suggestions offered will increase efficiency and save time.

Sweeping. The job of cleaning a classroom at the end of a day includes several minor jobs in addition to sweeping. Closing windows, adjusting shades, emptying pencil sharpeners and wastebaskets may be combined with the main job of sweeping so that short-cuts may be used. Whenever floors are in good, smooth condition, the treated sweeping or dust mop is superior to a push broom or a parlor broom. It is recommended that a sweeping compound be avoided with this type of mop since it might actually complicate the cleaning process. In using the "dust mop" method of cleaning, it is a good idea to soak new mop heads in boiling water for fifteen minutes to harden and shrink the cotton fiber. The mop should be dried and treated with a light oil in order to remove and retain dust.

In sprinkling the mop, some custodians use an ordinary bottle with a sprinkler top. There are several good dust "mop treats" on the market.

To prevent streaks on the floor, the mop should be sprinkled several hours before using. If the mop is brushed out at the end of the day and sprinkled at that time it will be ready for use the next day. Care should be taken to avoid adding too much oil on the mop. The mop strands should be sprinkled approximately half their length beginning at the frame, and oil will travel to the outer ends by wick action. This action will prevent oil streaked baseboards and furniture.

A good method of cleaning the mop is to soak it overnight in a cleaning solution. Mop heads should be washed out and rinsed in hot water. The rinsing is complete when rinse water leaving the mop head is clean. The mop should be dried before being treated with an oil mixture. Mops should be stored in a metal container when not in use.

Although there are several suggested plans for sweeping classrooms, surveys indicate that two custodians working together can sweep a room in less than one-half the time required by one man working alone. This general plan calls for one custodian to move the student chairs while the second custodian sweeps. The dust mop in this operation could be 36 or 42 inches wide. In a room in which furniture is not movable, a small mop on a swivel handle would be more effective. The long strand mop allows for swishing in corners or around furniture legs.

Corridors are avenues of heavier traffic and an area of more dirt collection; therefore, they present a different situation in sweeping. Near entranceways where a heavy amount of dirt may accumulate, it may be necessary to use a push or bristle broom to remove the dirt. It may also be necessary to sweep certain areas several times a day. In corridors larger mops may be used. Care should be taken to avoid mopping along baseboards as oil may cause streaking. If streaking of woodwork does occur it is important to clean each soiled area with a soft cloth. To aid in keeping all floors free from grime it will probably be necessary to damp mop floors with a water mop once a week; however, floors should never be damp mopped without first dust mopping.

Most modern stairways may be swept with an oil treated dust mop. However, if stairs are built with square corners, or rough treads, a push bristle broom may be effective. The use of sweeping compound is not recommended unless a bristle broom is used. If a compound is used, only a very small amount should be sprinkled on the stairs.

Gymnasium floors, which present large, open areas, may be quickly cleaned each day with a wide oil-treated dust mop. As a rule, gymnasium floors should be cleaned once a day, however, it is generally wise to check cleaning plans with the coach or physical education director.

A very important step in any cleaning process requires the use of a clean mop or broom. Sweeping mops should be combed thoroughly, and all dirt and dust should be removed before treating with sweeping oil. Combing removes all of the dirt that will not shake out. The mop strands will remain light and fluffy in texture and slightly lighter in color, due to the removal of dirt. The weight of the mop will be reduced, making the handling of the mop easier. There can be no set interval between combing times for sweeping mops. Due to the condition of floors in different locations, a comb must be handy at all times. Sweepbrushes, however, are a different story. Since the advent of nylon, fiber, and horse hair brushes, combing has become a daily routine. Since bristles bend and become interlaced, good sweeping cannot be done unless the bristles are combed daily. In addition, combing lengthens the life of the brushes.

Mopping. Mopping floors assist in removing dirt and improves the general sanitary condition of the building. If properly done, it produces a better looking floor surface. However, a poor job of mopping may leave a streaked or spotted floor.

Mopping may be classified as either damp or wet, depending upon the amount of water used for the purpose. Damp mopping removes floor surface soil by means of a mop that has been well dried after being dipped in clean water or in a cleaning solution. The water or the cleaning solution acts as a solvent to loosen the dirt, which adheres to the cotton mop as it passes over the surface. As may be expected, damp mopping is superficial cleaning and does not remove soil that is imbedded in the floor.

In wet mopping, the mop head is saturated with a cleaning solution which is transferred from the bucket to the floor, where it is allowed to remain for a while in order to loosen the soil. Some mopping action is required to spread the cleaning solution and to assist in working the dirt loose from the surface. The moisture is removed from the floor by means of a partially dried mop. For best results, a rinsing with clear water should follow the application and removal of the cleaning solution. When a large floor surface is to be cleaned, it is necessary to use two buckets, one for the cleaning solution and the other for rinsing water, and two mops. Too often an attempt is made to mop a floor with only the bucket of cleaning solution which soon becomes dirty. It is impossible to do a good job of floor mopping this way. An application of clear rinsing water must follow. In mopping, the cleaning depends in large part on the chemical action of the cleaning solution and only a little on the physical abrasive action resulting from the movement of the mop over the surface. As might be expected, wet mopping removes more soil from a floor than does the simpler damp mopping. Before mopping all wastepaper should be removed and the floor cleaned with a dust mop. The type of detergent used will effect the amount needed for the floor. Over use of detergents should be avoided. This will leave streaks on the floor. The heavy traffic paths should be first "wet down." If baseboards become streaked, the spots must be removed immediately.

Whenever mopping an open area, a strip about nine feet wide should be cleaned. If the strip starts to dry before the area is cleaned, too large an area has been attempted. Whenever part of the space has been well covered with mopping solution, the mop should be dried as much as possible. The solution should be removed from the floor by wringing the mop as often as necessary. A compressor type wringer is probably better than the roller type as it is less destructive to the mop head.

Time and effort will be saved if (1) mops are not slapped into walls and furniture, (2) sections are overlapped both in mopping and drying to avoid dirty "lap marks," (3) the cleaning solution is changed as frequently as necessary to avoid streaky floors, and (4) water is not allowed to stand for any length of time on any kind of floor.

Scrubbing Floors. Scrubbing a floor is in many respects similar to mopping a floor. The purpose of both operations is to clean the surface. Each operation uses a cleaning solution to loosen the dirt and requires rinsing with clean water. In scrubbing, however, the brush--either hand or electric driven--involves a greater physical action in loosening dirt particles adhering to the floor. A mop glides over the surface removing some types of soil, while the brush fibers dig into the surface and rake loose the soil particles that might be missed by a mop. If mopping will do a good job of floor cleaning, it is better than scrubbing. However, sometimes floors become so dirty that vigorous scrubbing is required. This is true of any type flooring materials--wood, masonry, or composition.

A cleaning solution consisting of water and an appropriate detergent may be used in order to soften and loosen the soil. Soap and alkali powders are the most common of such cleaning agents. For use on terrazzo or concrete, a scouring powder may be used effectively.

Care should be taken in the use of water and cleaning agents as excess amounts will actually cause the floor to deteriorate. The cleaning solution may be applied to the floor in several ways. In schools where a large electric scrubbing machine is available, the entire process of cleaning is done at one time. The most common method, however, is to apply the solution by using an ordinary cotton mop. Emptying an entire bucket of solution on the floor at one time is not desirable since the floors will become flooded and actually damaged. Using the mop to apply the solution gives the custodian better control over the amount used. The cleaning solution should not be applied over too large an area because the excess water should be removed from the floor within a reasonable time after the application. The actual scrubbing process achieves best results with an electric scrubbing machine. This machine uses a bristle brush and does a very effective job of breaking loose the soil particles. Immediately after the scrubbing operation the solution should be removed from the floor in the most practical manner. One procedure utilizes a clean cotton mop. Another method which appears to be more effective is the use of a squeegee. The squeegee moves all water to one spot where it can be removed in an ordinary dust pan or with a cotton mop. The best method of removing excess water, however, is to use an electric water vacuum pickup machine. A thorough scrubbing job like any other cleaning job requires rinsing. The original scrubbing solution becomes very dirty, and if rinsing is not done, the floor will show stains and streaks. The rinsing water will remove excess soap or cleaning powders which might be harmful to the floor if allowed to remain. Soapy film left on floors causes a slippery effect and creates a safety hazard.

Special attention should be given to the scrubbing of wood floors that have been treated with oil. The scrubbing process should be repeated two or three times within an interval of one week. This is required because all the oil cannot be removed at one scrubbing. After the surface of the floor has been cleaned, the oil in the wood will come to the top. If oil is to be placed on the floor after it is cleaned, it will not be necessary to repeat the scrubbing process.

Some suggestions that will aid custodians in performing a better job of cleaning are as follows:

1. The floor should be cleaned in small sections in both scrubbing and rinsing operations.

2. Sections should be overlapped while cleaning to avoid streaks.

3. Excess water should not be allowed to remain on the floor any longer than absolutely necessary.

4. A sweeping and water pick-up pan or wet vacuum machine are better to use than the mop in removing water from the floor.

Waxing. Waxing of floors in a school building serves several purposes:

1. It protects the floor from wear and deterioration.
2. It prevents the floor from becoming stained or discolored.
3. It simplifies cleaning.
4. It improves appearance.

Most custodians seem to prefer the liquid type wax because it requires less labor and is easier to apply in an even coat on the floor. This type of wax also dries with a gloss and does not require buffing; however, after it has been used for several weeks, some custodians like to damp mop the floors and go over them with a buffer to keep a higher gloss. Too, a small amount of water emulsion wax can be added to the rinse water after mopping in order to add a sheen to the floor.

The most important single factor in waxing is to have the floor perfectly clean. If the floor is in good condition it may be necessary only tc wet mop the floor to remove dust and top particles from the floor. In most cases the wax should be applied in two very thin coats. After the first coat has been applied it should be allowed to dry thoroughly before the second coat is applied.

One very effective way to apply the wax is to use a short strand mop. Wax should be applied to the floor without any back and forth movements as this will cause an uneven layer.

Some helpful suggestions in applying wax are these:

1. Dip a clean wet mop in clear warm water and wring it out. A moist mop holds wax better than a dry one.

2. In waxing an office, as much furniture as possible should be moved into the hall.

3. In waxing a classroom, all furniture should be moved to the front of the room in order to permit waxing one-half of the room at a time. In spreading wax, it is best to dip the mop in the wax solution and squeeze gently in order to prevent dripping. The drier the mop has been squeezed the thinner the coat of wax will be on the floor.

4. The secret of a good wax job is applying a thin coat of wax on the floor.

5. Best procedure dictates that it is best to begin spreading the first thin coat of wax by starting in the farthest corner from the door. It is important to remain away from the baseboard.

6. To spread the wax move the mop in a similar manner as in wet mopping. It is important to overlap each stroke in order to achieve an even covering without streaking.

7. The first coat should be allowed to dry exceedingly well. All doors and windows should be opened in order to speed the drying process.

8. A second thin coat should be applied so as to overlap the first coat to within five inches of the wall. It should be allowed to dry well. Wax should always be applied IN TWO THIN COATS. A heavy coat will not dry and polish, and it will scuff easily and turn yellow.

9. When the floor is dry, it should be buffed with the buffing machine. The polishing brush should be used rather than the scrubbing brush.

10. The machine should be moved to the baseboards. This will spread some wax to the wall, and it will leave a sheen.

Cleaning Agents. For mopping a very small area, clear water may be sufficient to remove soil or stains on the floor. In cleaning large areas, soap solutions are useful in loosening dirt and help to float away loosened soil particles. Cleaning powders of the alkali type may be useful in softening the water and in emulsifying grease and oil. Scouring powders are used in some mopping operations, but usually only on such hard surface materials as tile, terrazzo, stone, or treated concrete. They rarely are used in mopping wood, linoleum, rubber, or asphalt floors. A poor job of mopping and rinsing may leave the scouring powder on the floor surface in the form of a residue. If scouring is used, it should be sprinkled very lightly over the floor after it has been wet rather than mixed in the cleaning solution in the mopping bucket or tank. A heavy application of powder is sheer waste of material and requires added labor for its removal.

Effects of Excess Water. The use of water and cleaning solution on floors should be limited to real needs since some types of floors may deteriorate. Wood floors especially may be harmed through the use of too much water. It causes the floor boards to swell, warp, decay, and shrink over a period of time. In some cases, water causes the grain to rise and to produce a nap or fuzz on the surface that catches dirt and makes cleaning more difficult. Wood floors that have been properly sealed are not so likely to suffer these effects if only a relatively small amount of water is used and allowed to remain on the surface only a short time. However, heavy and prolonged flooding will result in badly damaged floors.

Some types of floor coverings that are cemented to a base by means of a mastic compound may become loosened by the solvent action of the water or cleaning solution on the adhesive material. Water that enters the burlap backing of linoleum tends to cause it to decay. Some cleaning agents, such as alkali salts, may penetrate while in solution into pores and crevices of terrazzo, marble, and concrete floors, and over a period of time build crystals that cause the floor surface to disintegrate.

In general, it may be said that when water is used for cleaning floors, whether in mopping or in scrubbing, a minimum amount should be used, and it should be allowed to remain on the surface no longer than is necessary. It is a mistake to heavily flood a floor and allow water to remain on the surface for any length of time.

G. SUMMARY

The school custodian has numerous and varied housekeeping duties to perform in caring for school plants and facilities. Six major areas of housekeeping duties have been defined, however, countless tasks must be performed in terms of each category. Highly desirable methods and procedures have been outlined for each function in order to assist the custodial staff.

CHAPTER V

CLEANING RESTROOMS IN THE SCHOOL PLANT

No single area of the school plant reveals the nature of cleanliness more readily than does the restroom. If all other areas in the school plant are kept in good condition, but the restrooms are soiled and odorous, many of the accomplishments of the school, staff, and student body may be offset. This is unfair because this area may vitally effect the health of all children in school. Furthermore, clean restrooms are signs of decency, respectability, and high health standards.

School officials, long in the dark over ultimate comparative costs of various kinds of building materials, now have some objective evidence for decisions in selecting impervious ceramic vitreous tile flooring and related materials for sidewalls and partitions as the initial step in assuring restrooms free of obnoxious odors. This modern phenomenon of non-porous building materials with light colors has contributed much to the attractiveness for which better schools aspire. Evident also is the school administrator's immediate concern of the previous low cost per square foot for restrooms. This general trend represents real progress in providing a place in which individuals may care for needs of the body without being forced to enter disagreeable, smelly, and unattractive restrooms.

A. CARE OF RESTROOMS

In no other area in a school building is cooperation of principal, teachers, pupils, and custodian needed as much as in the care and order of restrooms. Not all the responsibility for the care of the restrooms belongs to the custodian. The responsibility for the care of restrooms should be shared by the custodian, students, teachers, and the principal. In some schools it may be advisable, if it is practical, for teachers to supervise restrooms at frequent intervals during recess. In some instances pupils may be of assistance in patrol duty at recess. It may also be desirable for the custodian to be in or near the boys' restroom during recess periods. Because of the conditions under which the custodian works, it requires much tact on the part of the custodian to be able to secure pupil cooperation in the care of restrooms. Since the custodian is not authorized to discipline children for infraction of school regulations, arrangements should be made to secure the cooperation of teachers and principals in caring for facilities.

It is important that children be taught through proper methods and suitable environment, desirable health and bodily care. Teachers having smaller children should provide instruction in the use of restrooms in terms of method of flushing the toilets, use of urinals, use of soap and paper towels, disposal of paper towels, and restroom sanitation. Older pupils should be reminded of the forementioned health practices, instructed in the use and disposal of sanitary napkins, and the restraint from writing on walls.

The proper care and upkeep of the restrooms involve cleanliness, frequency of supervision and inspection, and ventilation. Frequent inspection and service will be necessary if the restrooms are to be properly maintained. The custodian should inspect each restroom after each recess and noon hour and render necessary service as soon as the need is apparent. Pupils respect a clean orderly restroom, but there is little regard for a soiled and untidy facility. The custodian should plan the restroom service so that it can be properly observed and included in the daily work schedule. Methods and processes for servicing and cleaning these areas should be developed in order that daily, weekly, or periodic cleaning services will be performed at the proper intervals and in a thorough and uniform manner.

B. ORIGIN OF ODORS

Disagreeable odors in restrooms are of two types: (1) temporary odors that occur from body elimination, and (2) persisting or permanent odors caused from soiled stool fixtures, urinal traps, urine stained partitions, and urine saturated floors. Temporary odors can generally be expelled by ventilation, provided there is a continuous flow of fresh air and removal of polluted air from the room in a short time. The serious restroom odor is of the latter type, the lingering obnoxious odor that remains in the room regardless of the type of ventilation. This permanent odor is the result of improper building materials, improper care, and general uncleanliness. The source of this lasting odor is usually found on soiled and stained floors, soiled toilet stools, soiled urinals, and soiled wainscot and partitions. Proper care and cleaning of each source will be discussed separately.

C. CLEANING AGENTS

Restroom fixtures usually consist of vitreous china or enameled iron. Both of these materials appear relatively hard, but damage may be caused by using improper cleaning substances and wrong methods of cleaning. The use of cleansing agents that may etch the vitreous china or enameled surface of toilet bowls, lavatories, or drinking fountains should be prohibited as etching provides a base for the clinging of more dirt and bacterial development.

The cleaning materials generally used are (1) soap, (2) some alkali detergents, (3) scouring powder, or (4) a combination of these materials, and (5) a sponge or brush. Soap assists in severing soil from the surface and allows the dirt to float away. An alkali has special value in emulsifying greasy and oily dirt, which later can be washed away with rubbing and rinsing. A scouring powder provides an abrasive or cutting action that tears the dirt away from the surface. It is important that coarse and sharp scouring powder be avoided as it will actually mar a vitreous china or enameled surface.

D. LAVATORIES

The cleaning of lavatories should be similar to that of cleaning drinking fountains. Lavatories should be cleaned daily with either soap, alkali, or scouring powder, or a combination of these materials. First, the bowl should be wet, then sprinkled with trisodium phosphate, rubbed with a wet cloth until dirt is loosened, and finally rinsed with clean, warm water. If the dirt or grease does not dissolve, a small amount of scouring powder should be sprinkled on a damp cloth, rubbed vigorously, and then rinsed. After rinsing, all metal parts can be polished with a clean, dry cloth.

E. TOILET BOWLS

Toilet bowls should be thoroughly cleaned at the end of each day. The standard tool for this job is a hopper brush. It is customary to flush the bowl several times in order to have clean water. If a bowl cleaner is needed, a tablespoon of trisodium phosphate may be dissolved in the water of the bowl. All inside areas should be vigorously scrubbed by reaching deep into the throat of the bowl, and cleaning around the rim. The custodian should not hesitate to use a cloth and his hand in order to clean hidden places.

At intervals the custodian can use a mirror for inspecting under the rim of the bowls for filth accumulation and bacterial cultures. This film can be removed with a damp cloth and cleansing powder. All of the outside area of the bowl should receive the same attention. In general, it is wise to avoid the use of acid solution for daily routine cleaning of toilet bowls.

In some rooms in which service is heavy, it may be necessary to clean toilet seats several times a day. A soap and hot water solution is recommended for the job, either with or without the addition of some disinfectant. Every part of the seat should be cleaned as the underside may be more soiled than the top due to splashing in the bowl. Metal parts and supports should be cleaned to prevent soil encrustation and corrosion. Damaged seats should be removed and replaced.

Toilet bowls seem to give the greatest trouble as far as stoppage is concerned. Frequently, the bowls become clogged because of insufficient water supply or through the dropping of articles in the bowl.

Stoppage may be relieved by filling the bowl with water and at the same time working the plunger up and down over the bowl outlet. If the condition is not corrected, it may be necessary to use a wire hook or an auger.

F. URINALS

Proper arrangements for flushing of fixtures will prevent the accumulation of pools of stale urine. Daily and periodic cleaning of fixtures and traps will serve to minimize the accumulation of encrustations as urinals can be a serious source of bad odor conditions in restrooms.

Urinals and adjacent areas should be cleaned at least once a day and inspections should be made after every recess period during the day to check for stoppage and to remove insoluble objects as paper, gum, sticks, and other objects which may cause serious problems. A hopper brush or a special type of urinal brush can be used to help release soiled deposits. A cleaning solution of soap and water, or some alkali solution in water should be used if areas are soiled. All surfaces should be thoroughly cleaned, flushed, and rinsed. All of the outside surfaces should be cleaned with particular attention to grooves and crevices.

Special emphasis should be devoted to the condition of urinal traps. It is practical and wise to brush each with a long handled brush, otherwise, the traps should be thoroughly cleaned every week. If the trap is encrusted, a special scale solvent may be used to remove encrustation. After the trap is cleaned it should be flushed with water.

G. WALLS AND PARTITIONS

Walls and partitions should be checked and cleaned daily and scrubbed each week. Writings and marks in the restrooms should be removed immediately. If the walls and partitions are constructed of materials other than glazed tile, it is desirable to paint each section as frequently as possible in order to maintain a maximum degree of cleanliness.

H. FLOORS

The final step in every restroom cleaning operation should be cleaning and drying the floor. Cleanliness may be achieved by regular daily mopping with correct detergent. Harsh cleaning agents, such as acid solutions and abrasive powder, should be avoided for regular daily cleaning. New floors in restrooms should be thoroughly sealed with a penetrating seal especially recommended for the floor before the restroom is used. A wood or concrete floor can be painted with a floor enamel. The same type penetrating seal used on wood floors may be applied to a concrete floor with some degree of success if spread in two or three thin coats. The floor should be cleaned daily and resealed at regular intervals.

Dirty floors in restrooms can be the source of lingering "toilet odor." Such odor is caused by urine spattered concrete, terrazzo, wood, or other similar type floors. Urine is an acid which will penetrate even the closest grained material. Wood and concrete are especially susceptible to penetration of urine. The chemical reaction of urine and the wood or concrete and the decomposition of the urine will cause a lingering odor to remain in the room. In some instances the concrete floors near urinals become so saturated with urine over a period of years that an obnoxious stench results. The floor may become so bad that even sealing will not correct the condition. The only alternative is to remove the saturated floor and replace it with an impervious ceramic tile.

Since floors in restrooms tend to become wet and dirty, a warm water solution containing trisodium phosphate should be used in mopping at least once a day. When traffic is heavy, mopping may be necessary at two or three intervals during the day. The important point is that the floor should be kept clean. A floor drain should be available in the restroom floor to permit flushing with a hose, however, flushing is not a substitute for mopping with a cleansing detergent.

I. VENTILATION

Proper ventilation is necessary in maintaining a sanitary restroom. Restroom windows should be opened from the top as soon as the custodian arrives each morning. Louvers in restroom doors may be desirable and forced air vents are sometime necessary. In restrooms in which windows are located on two sides, it is desirable to raise one from the bottom and the other from the top in order to secure cross ventilation. Conditions will vary in buildings so it may be necessary to experiment to determine the best way to expel foul air.

Temperature in restrooms should be controlled at not more than 60 degrees to discourage loafing in the area and to help reduce unpleasant odors.

J. DEODORANTS AND DISINFECTANTS

The use of deodorants in a restroom is debatable. The primary purpose of a deodorant is to counter or neutralize a foul odor. Generally, deodorants only substitute one odor for another and may cause lower standards of cleanliness and sanitation. Too, there may be a tendency to disguise and overlook the actual unsanitary condition of the restroom if deodorants are relied upon too strongly. However, moderate use of deodorants in clean and well ventilated restrooms is commendable. Disinfectants may be used in caring for restrooms. A disinfectant will destroy some bacteria and may have a psychological value in assuring the public that an attempt is being made to provide sanitary restrooms in the school. However, there are medical authorities who question the need of this practice. There is the belief that fresh air, sunshine, soap and hot water, and high health standards of general sanitation are adequate to meet ordinary conditions.

If a disinfectant is used in routine cleaning of a restroom, it should be mixed with the cleaning solution used in mopping floors and cleaning fixtures. The disinfectant is more effective if water is added to it rather than the disinfectant to the water.

K. RESTROOM SUPPLIES

It should be understood that restrooms do not provide the greatest service unless supplies are available. Essential supplies include (1) running water, (2) toilet tissue, (3) soap, (4) hand drying material, (5) mirrors, and (6) waste receptacles.

Many supplies, particularly toilet tissue, paper towels, and soap are wasted in restrooms. Custodians do not control the purchase of these materials; however, this group does exercise some control in the distribution and use. The custodian is not in a position to deny all pupils the supplies needed in order to punish a few wasteful pupils. The custodian, students, teachers, and principal should formulate a plan to assure proper use of supplies. Careful selection of types of supplies and fixtures will aid in proper use and conservation of restroom supplies.

L. SUMMARY

Toilet rooms and fixtures require meticulous care each day. Clean orderly, odorless toilet rooms not only protect the health of pupils and teachers but also serve as a basis for evaluating the general efficiency of custodial services throughout the building. Poor toilet room conditions have an adverse effect on students and adults alike. Students seem to feel that toilet room disorder invites mischief, vandalism, and further disorder; while adults tend to downgrade the school, lose respect for the custodial staff, and criticize school officials. The daily custodial work schedule should provide ample time for the performance of the regular and extra duties required to keep toilet rooms in a sanitary condition.[49]

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[49] R. N. Finchum, op. cit., pp. 55-56.

CHAPTER VI

OPERATION AND CARE OF MECHANICAL EQUIPMENT IN THE SCHOOL PLANT

In this modern age school plants are equipped with many pieces of mechanical equipment which are essential to efficient operation, convenience, health, comfort, and the general state of well being of pupils and faculty. Failure of almost any of this equipment, particularly heating, electrical, sanitary plumbing and water supply, constitutes an emergency resulting in temporary closure of school until the condition can be remedied.

Many such instances can be avoided by proper care and operation of this equipment and the ability of the custodian to detect and correct certain conditions which ultimately lead to failure. With this thought in mind, an effort has been made to provide custodians with practical information which will assure a better job of caring for mechanical equipment.

A. HEATING EQUIPMENT

The heating of school plants in Louisiana is accomplished primarily by steam or hot water from boilers fired by natural gas, fuel oil, or coal. Hot air is used to a lesser extent; and there are some installations of electric heating. There are, of course, gas-steam radiators, gas-fired unit heaters, space heaters, radiant gas heaters, and some scattered wood and coal heaters. Other than removing excess ashes and maintaining the flues and dampers in good condition, wood and coal heaters need no special attention. Because of fire hazards the use of such heating facilities has been limited in school buildings.

Radiant gas heaters are usually trouble free, however, there is the ever present open-flame which constitutes a danger of clothing catching on fire and gas fumes being discharged directly into the room. Heaters should be vented to the outside. Many cities have local ordinances and building codes which prohibit the use of unvented heaters. The State Fire Marshal and the State Board of Health in Louisiana will prohibit the use of unvented heaters. In the event heaters of this type are used, care should be exercised to see that the needle valve, reached with a small screw-driver by removing the knurled screw in the end of the gas valve, is adjusted so that the flame will not leave the burner when the valve is turned to full position. Air intakes at the burner throat should be regulated so as to give a clear blue flame, alternating the air and fuel adjustments until the desired flame is obtained. The air intake should be cleaned periodically and kept free of lint. Failure to do these things can cause an excess of unburned and poisonous fumes.

Suspended gas fired unit heaters save space, are safe, and very effective. Vent flues should be inspected closely for leaks. These units are equipped with safety pilots which will not allow the main gas burner valve to open should the pilot accidentally be extinguished. Hot air is forced into the room by means of a fan blowing through the vanes of a bonnet or chamber which encloses the burner. There is a normal time lag between the burner lighting and the starting of the blower. The fan is controlled by a simple thermostat attached to the fire chamber which turns on the fan when the chamber attains a predetermined temperature. The object, of course, is to keep the fan from blowing cold air before the heater has warmed up. The fan motor should be oiled once a year.

Other types of gas-fired, forced air, floor heaters work on the same principle and require the same care. Likewise applicable to all types is the precaution of keeping air intake to burners open and properly adjusted even though vented to the outside.

In use in greater frequency are hot air systems which are much larger adaptations of the suspended unit heaters and floor models. These are usually installed in special heater rooms or closets and in attics. Because of the larger volume of heat to be circulated, a belt-driven squirrel cage type blower is used. Belts should be adjusted to prevent slippage and excess wear, and replaced when frayed. Judgement should be exercised when adjusting the belt. Any belt running too tight, will damage motor bearings, fan bearings, or the bearings of whatever piece of equipment is being driven. Motor and fan should be oiled periodically, depending on the usage and manufacturer's recommendations. Air filters, ordinarily used in such systems, should be kept clean or changed periodically. A clogged filter severely impedes the efficiency of a heating unit. The re-usable and washable type is cheaper in the long run.

All such heating equipment is controlled by thermostats which activate the main burner valve when room temperature falls below the temperature setting of the thermostat. Continuous changing of this setting by teachers is a source of great annoyance and trouble. A thermostat should be set at a comfortable setting of between 72° and 76° and seldom changed. The fix-setting type which cannot be tampered with is by far the most desirable. Contrary to belief, raising the temperature setting of a thermostat does not affect the volume of heat produced by a heating unit. This action does regulate the temperature at which the unit will shut off. The system will heat neither faster nor slower because of the thermostat setting.

Gas-steam radiators are a good source of heat and usually trouble free, however, many are of the unvented heater type. Their appearance is similar to the common steam radiator, the difference being in a self contained gas burner at the bottom of the radiator. The gas flame heats the radiator which is filled with water, thereby storing a large quantity of heat in a vessel with a very large area of radiation. The same care and principles of other types of gas heat are applicable here. Water level of the radiator should be checked regularly and the air vent tapped into the side of the radiator should be kept open and free of corrosion.

Whenever liquefied petroleum gas (bottled gas, butane, propane, etc.) is used in any of the aforementioned systems, extreme caution should be exercised to determine that all connections are tight and no gas is leaking. LP gas is extremely dangerous and treacherous. Unlike natural gas which is lighter than air and which rises and dissipates, LP gas is heavier than air and will settle to the floor, accumulate in pockets, and linger for considerable periods of time. It is extremely volatile and will ignite from a faint spark. The danger of explosion cannot be overstressed or overemphasized.

Central boiler systems are more universally used as a means of heating schools. These systems are commonly fired by natural gas; and in areas where gas is not available, fuel oil is used. Both steam, usually low pressure, and hot water are generated in these pressure fixed vessels and distributed to all areas of the school plant. In the case of hot water systems the water is circulated through radiators, convectors, forced air radiators, and through networks of water pipes laid in concrete floor slabs by means of circulating pumps in the boiler rooms. The school plant is usually divided into several heating zones, each served by one pump. Modern systems are governed by time clocks which will turn the boiler "on" and "off" at a given time, allowing the unit to remain off after school hours and on weekends. These units are equipped with weatherstats which automatically turn the system "on" or "off" with drastic and sudden weather changes. Several protective devices are provided so as to shut off the boilet if limitations of steam pressure or water temperature should be exceeded, if the pilot lights should go out, if the water level should drop, or if the burner flame should become unadjusted. By and large, modern equipment is fully automatic and does not require the constant attention of former years. However, many schools do not have such automatic equipment, and constant attention must be devoted to the heating unit.

Coal burning steam boilers and the boiler rooms are hardest to keep clean. Spraying of the coal and bin with water will keep down dust. The boiler room should be swept daily and the boiler and piping swept weekly. Ashes must be removed from the firebox daily, and tubes should be wire brushed daily for efficient and economical operation. Failure to remove ashes will cause the grate bars to burn. There is an inclination to use the boiler room as a catch-all for storing surplus furniture, janitor supplies and tools, old stage scenery, and other items. This positively should not be allowed. Water level must be maintained within the limits of the sight glass. The pressure relief valve on the coal fired boiler is the only safety device employed and the only protection against over-firing. It is extremely wise to operate this valve manually at regular intervals in order to prevent corrosion and sticking. After the boiler is fired in the morning all radiator valves should be checked to determine if all parts of the unit are functioning properly.

Gas burning boilers are usually quite compact, neat in appearance and clean in operation. These units should be so maintained by regular wiping, and the boiler room should be kept clean and absolutely free of litter. Because of the compactness of these plants small and well ventilated boiler rooms are required. All air vents should be kept unobstructed so as to provide the correct quantity of air required by the burner. The boiler should be inspected daily for proper operation. Time clocks, if used, should be checked daily and compensation made for any time lost from temporary electrical power failure. Pilots and burners should be examined for sooting resulting from faulty flame adjustment, lack of ventilation, or a faulty stack. Water temperature or steam pressure gauges should be checked regularly to determine that the boiler is operating within set limits. Water level should be checked by watching the sight glass. The condensate return pump should be watched for proper operation. Replenishing water in a steam boiler with hot water instead of fresh cold water is profitable and results in fuel economy. Vacuum pumps are used to increase the flow of low pressure steam by keeping a vacuum on the heat radiating system and efficient operation is achieved through periodic checking. Hot water circulating pumps in hot water systems should be inspected to achieve smooth, noiseless, and vibration free operation. Vibration is usually caused by poor alignment of motor and pump if operated as separate coupled units and by water being too hot and breaking into steam in the pump. Leaking of seals around driveshafts should be carefully checked. One general firebox and/or tube cleaning once a year will suffice if burners are kept properly adjusted. An improperly adjusted burner will completely soot-up a boiler in a matter of hours.

Fuel oil burning units do not enjoy the performance reputation of gas fired boilers. Too, these units are somewhat messy. A roaring fuel oil firebox presents an awesome sight to the uninitiated and instinct dictates treatment with respect. However, it is easy to become careless as knowledge of the behavior of the unit increases. Custodial personnel should be aware that burning fuel oil is more troublesome and treacherous than either gas or coal. Manufacturers have taken precautions to equip these boilers with automatic safety devices; however, caution should be exercised for an automatically or mechanically operated item can fail on occasions. All standard precautions listed earlier are applicable to oil fired boilers. In addition, extra precaution should be observed in checking oil leaks and watching the flame for proper density. In addition, it is wise to check the smokestack periodically. There should be only a thin gray vapor rising, and if black smoke emerges from the smokestack the burner should be adjusted immediately. If this precaution is ignored, boiler tubes will be completely clogged with soot in a short time. The tubes should be brushed and the firebox cleaned regularly. In the event the fuel fails to ignite readily, it is wise not to force the ignition by repeated efforts as this will cause an accumulation of fuel to puddle in the firebox. The pilot flame and ignition transformers should be checked and any residual fuel remaining in the firebox should be cleaned before an attempt to relight is made. Boilers of this type are usually equipped with a stack control which prevents the blasting of fuel into a hot firebox. No attempt to relight the boiler should be made until the firebox has cooled. Fuel should be ordered when the tank is low on fuel at the end of the heating season. It should be agitated if possible by air hose, and pumped dry with a pitcher pump to clean out all water and sludge. The oil is not wasted as it can be used very effectively as weed killer. The tank filler pipe should be kept capped and precautions taken against water entering the tank. The fuel line should be protected against leakage caused by movement or rusting as a leaky fuel line will cause the fuel pump to lose its prime.

B. VENTILATING EQUIPMENT

Fortunately the mild Louisiana climate does not require expensive ventilating equipment found in sections of the country which experience severe extremes in temperature. Ventilation, for the most part, is obtained from simply opening windows, doors, and transoms.

The problem of cooling school facilities in Louisiana is limited primarily to the months of May, June, and September. Generally, the temperature before and after these months is comfortable. Therefore, comments are limited to appliances used in the immediate locale.

A number of window air-conditioners, particularly in offices of principals, assistants, and clerks, have been installed. This is especially true if a principal is required to be on duty all year. Little can be done in the way of maintenance to these units as each is sealed and lubricated for life, however, filters should be examined regularly and kept clean. A unit should never be used without a filter as failure to install a filter will clog the evaporator with lint and dirt. The efficiency of the unit will drop gradually to the point of being ineffective and machinery will be damaged. The thin heat dissipating fins of the condenser should be drawn out straight with a pair of sharp-nosed pliers and a knife blade. The condenser is the radiator-like affair, at the back of the unit, through which hot air is blown to the outside. These become accidently or maliciously bent very easily. In dusty areas, the unit should be removed every other year and the condenser drip pan hosed down to wash away the mud which has settled in it.

Household, pedestal, and floor type fans should be oiled every year before being placed in use. Frayed service cords and broken plugs should be checked; and the leading edge of the blades should be wiped free of fuzz which has accumulated and is building up resistance. These fans have a distinct advantage in being portable and can be used wherever needed. However, fans are noisy and easily damaged, and blow too concentrated a stream of air in one direction.

The attic-type fan is by far the most widely used. These fans operate quietly and handle a large volume of air. Maintenance is simple, requiring only that the fan and motor bearings be lubricated once a year and the drive belt be kept in good condition. Loose or misaligned belts wear excessively and cause trouble. The belt can be adjusted and properly aligned by loosening the screws or bolts in the motor mount or motor base, shifting the motor to the proper position, and retightening.

The once very popular ceiling fan is again being used quite extensively. This fan is usually trouble free, moves a large volume of air, and is noiseless. Electric current consumption is low, and year to year maintenance is almost nil. It is well, however, to add a few drops of oil to the oil cup on the topside of the motor every year. This was originally filled on installation with a measure of oil furnished with the fan. Periodic cleaning of the fan blades is necessary to remove lint and dirt and preserve the finish.

C. PLUMBING EQUIPMENT

The water supply of a school plant is of critical importance. It should be in sufficient supply and should be checked for purity at periodic intervals by the local or State Board of Health. In the quantity used by a school, very little can be done to neutralize "hardness" which stains fixtures and restricts piping with mineral deposits. Drinking fountain bubblers can be "rodded out" with a piece of stiff wire. A piece of coat hanger makes a good tool for keeping open the holes in the flush rim of a commode or urinal. Failure to keep these open will cause an insufficient flow of "wash-down" water which becomes a source of stoppages and presents other sanitation problems.

Low water supply is the main cause for improper function of automatic flush valves which depend on good water pressure for satisfactory operation. Insufficient pressure will cause the valves to remain open after flushing, thus compounding the low pressure trouble. Several valves running simultaneously will, besides being extremely wasteful, prevent any flush valve elsewhere in the system from operating and will reduce flow in faucets to a bare trickle. The cause for inadequate public water supply is often traced to the size of the meter. Very often it is found that the school is being fed through the same 3/4" meter installed for the contractor at the time the school was being built. The meter should be changed by the water company to match the water line into the plant--usually two inches or more, depending upon the size of the school.

Deep wells which are used at rural schools generally give little cause for concern. Any indication of erratic operation such as reduced supply and the presence of sand or air in water lines should be brought to the attention of the well driller who is informed as to the action to follow. Water level in the storage tank, determined by a sight glass or petcocks, should be maintained in proper proportion to the air space in the tank. If the tank becomes waterlogged, characterized by too frequent running of the pump for short intervals or banging in the piping, the pump should be turned off while the tank is drained to the proper level. The air supply, either a separate compressor or a snifting valve as part of a reciprocating piston pump, should be checked to see that air is being delivered to the tank when called for by the float control. Moving parts should be kept well lubricated, belts properly adjusted. The whole installation should be kept free of leaks and painted with a rust preventive.

Cleanliness, perhaps more than anything else, will prolong the life of plumbing fixtures. Closet and urinal trims should be cleaned daily to keep them free of urine which is extremely corrosive. There are a number of chemicals in the janitor supply line which may be used to remove rust stains from fixtures.

Waste paper containers should be kept in restrooms for the disposal of paper towels and other materials which might otherwise be flushed down a toilet. An adequate supply of toilet tissue should be kept in toilet rooms, the fold tissue in cabinets, and the roll tissue on roll hangers. Loose fold tissue or a roll of loose paper serves as an invitation to a child to attempt to flush a handful of paper, or a whole roll at a time. It is also conducive to waste. An exhausted supply of toilet tissue is a cause for the use of newspaper, paper towels, wrapping or writing papers which are too coarse to dissolve quickly and are a source of trouble. Sanitary napkins are a major source of plumbing stop-ups. Sanitary containers for napkins should be provided in restrooms for older girls and teachers. The custodian should keep floor drains open, strainers clean, and avoid sweeping trash over them.

Other major items to consider in maintaining plumbing facilities are:

1. All outside drinking fountains and hose bibs should be turned "off" and drained whenever weather presents the danger of freezing.

2. If possible, any exterior line, faucets, or drains which may be damaged by lawnmowers or trucks should be covered, marked, or barricaded.

3. The sewer lift and sewer treatment plant houses should be locked as a protection against vandalism.

4. The use of sewer houses and water heater rooms for storage should be avoided.

5. Gutters, downspouts, and catch basins should be free of leaves, sticks, grass, and trash. This will prevent clogging of storm drainage which in extreme cases may be the only protection against water entering the buildings.

6. Tractors, trucks, or any equipment should not be permitted to drive across the sewer disposal "absorption field" or "filter bed."

D. SUMMARY

Mechanical and engineering work includes the operation and care of heating, ventilating, air conditioning, and plumbing systems. In the operation of schools the duties associated with servicing these systems are the responsibility of the school custodial staff. Some components of the mechanical system require daily attention while others may be serviced at less frequent intervals.

It is important that the custodial staff be well informed as to the care and operation of all phases of mechanical and electrical equipment.

CHAPTER VII

SUMMARY

The maintenance and operation of the school plant are the responsibility of the school custodian. He is the person who has thorough knowledge of the janitorial problems of the school plant. Because of his intimate relationship with the form, material, and design of the school building, his advice and opinion are quite valuable. School plants with valuations of millions of dollars are entrusted to the care of the custodial staff. It is most desirable to seek and employ the best qualified personnel available to serve in this capacity.

School custodians are employees of local school boards. Legal benefits available to this group include sick leave, leave without pay, retirement, workmen's compensation, and group insurance. Tenure benefits have been provided to school custodians employed by the Orleans Parish School Board; however, these benefits are not applicable to the custodial staff employed by the other sixty-six parish and city school boards.

No state-wide minimum salary schedule has ever been enacted for school custodians. As a result, the matter of determining salary scales for custodians is a matter left to the discretion of each local school board. Therefore, variations in rates exist from one unit to another.

Custodial housekeeping duties are concerned with cleaning woodwork, walls, ceilings, windows, glass fixtures, light fixtures, chalkboards, erasers, furniture, and floors. Detailed information relative to the cleaning of each of these items has been presented in narrative form. School custodians, for the most part, are concerned with duties and responsibilities relative to care and cleaning facilities, and the material prepared in the report should serve a very useful purpose.

In addition to housekeeping duties, the school custodian is responsible for cleaning and maintaining attractive restrooms in the school. Probably no other single area of the school plant reveals the nature of cleanliness as do the restrooms. Clean restrooms reflect decency, respectability, and encourage high standards of healthful living.

Information relative to the care of restrooms has been presented in terms of the more common procedures and methods utilized in cleaning lavatories, toilet bowls, urinals, walls, partitions, and other surface areas in the restroom. The use of deodorants, disinfectants, and the important role of proper ventilation have been emphasized.

Another important phase of the school custodians responsibilities is concerned with the operation and care of mechanical equipment in the school plant. This section of the report discusses in detail the operation and care of heating units, ventilating equipment, and plumbing equipments. The operation of the school is entirely dependent upon the maximum efficiency and operation of all equipment concerned with heating, ventilating, and plumbing. Failure of any one of these areas will literally mean that the operation of the school will be threatened. Therefore, the importance of the custodian's role relative to care and operation of equipment cannot be overemphasized.

School administrators, principals, teachers, and students share responsibility for maintaining and caring for the school plant. The school custodian cannot do it alone nor should he be expected to do so. Cooperative planning and working on the part of all groups are essential, if the school is to perform and achieve its goals.

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